WHAT IS CLAIMED IS:

Clms 1-9
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1. A method for manufacturing an armature for dynamo-electric machine, the armature comprising an armature core provided with a plurality of slots extending in an axial direction and disposed alongside each other in a circumferential direction, an armature winding inserted in the slots so as to be mounted on the armature core, and an insulator mounted in each of the slots for insulating between the armature core and the armature winding, the method comprising the steps of:

forming a substantially U-shaped insulator having side portions connected with a bottom portion, the side portions being bent at a first bent part of each side portion so as to be apart from each other to form outwardly bent portions on the top sides of the side portions;

forming a winding assembly composed of strands of wire formed in a predetermined wound state;

mounting the insulator in each of the plurality of slots in a manner such that the outwardly bent portions of the insulator protrude from an open side of the slot; and

inserting the winding assembly in the insulator from the open side of each slot by being guided by the outwardly bent portions of the insulator, and pushing the winding assembly together with the insulators into the slots.

2. The method for manufacturing an armature for a dynamo-electric machine, according to Claim 1, wherein the step of forming the substantially U-shaped insulator includes the step of bending the outwardly bent portions

at a second bent part so as to be close to each other, whereby each of the outwardly bent portions is formed in an L-shape.

3. The method for manufacturing an armature for a dynamo-electric machine, according to Claim 2, wherein the first and second bent parts of one of the side portions of the insulator are positioned shifted toward the bottom portion of the insulator with respect to the first and second bent parts of the other side portion of the insulator.

4. The method for manufacturing an armature for a dynamo-electric machine, according to Claim 1, wherein at least one part of the bottom portion of the insulator is formed in one of concave and convex shapes.

5. The method for manufacturing an armature for a dynamo-electric machine, according to Claim 1, further comprising the steps of:

preparing a rectangular parallelepiped laminated-core provided with the plurality of slots; and

rolling the rectangular parallelepiped laminated-core provided with the insulator mounted in each of the plurality of slots and the winding assembly inserted in the insulators mounted in the plurality of slots and butt-welding the laminated core at ends thereof so as to form a cylinder.

6. The method for manufacturing an armature for a dynamo-electric machine, according to Claim 1, wherein the winding assembly is formed so that the strands of wire are disposed alongside each other in the slot-depth

direction in each slot.

7. The method for manufacturing an armature for a dynamo-electric machine, according to Claim 1, wherein the winding assembly comprises a pair of first and second winding groups, the first winding group comprising a number of first winding sub-portions each formed with the strand of wire made of a continuous conductor, the strand of wire being formed in a first wave shape by connecting straight portions which being disposed at a pitch of a predetermined number of slots and being alternately offset from each other by a predetermined distance in a direction perpendicular to the direction of the disposition thereof with turn portions, the first winding sub-portions being disposed at a pitch of one slot from each other and being equal in number to the predetermined number of slots, and the second winding group comprising a number of second winding sub-portions each formed with the strand of wire made of a continuous conductor, the strand of wire being formed in a second wave shape opposite to the first wave shape by connecting straight portions which being disposed at a pitch of the predetermined number of slots and being alternately offset from each other by the predetermined distance in a direction perpendicular to the direction of the disposition thereof with turn portions, the second winding sub-portions being disposed at a pitch of one slot from each other and being equal in number to the predetermined number of slots.

8. The method for manufacturing an armature for a dynamo-electric machine, according to Claim 7, wherein a plurality of the winding assemblies

overlapping each other are inserted in the plurality of slots.

9. The method for manufacturing an armature for a dynamo-electric machine, according to Claim 7, wherein the steps of mounting the insulator in each of the plurality of slots and inserting the winding assembly in the insulators mounted in the plurality of slots are alternately and repeatedly performed.

10. An armature for a dynamo-electric machine, the armature comprising:

an armature core provided with a plurality of slots extending in an axial direction and disposed alongside each other in a circumferential direction;

an armature winding inserted in the slots so as to be mounted on the armature core; and

an insulator mounted in each of the slots for insulating between the armature core and the armature winding,

wherein the insulator is disposed between an inner face of each slot and the armature winding, and first creases are formed on side portions of each insulator so as to extend in a longitudinal direction of the slot at a slot-opening side of the side portions, the first creases being formed by first bent parts for bending the slot-opening side of the side portions so as to be apart from each other.

11. The armature for a dynamo-electric machine according to Claim 10, wherein second creases are formed on the side portions of each insulator so as

to extend in a longitudinal direction of the slot at a slot-opening side of the first creases, the second creases being formed by second bent parts for bending the slot-opening side of the side portions so as to be close to each other.

12. The armature for a dynamo- electric machine according to Claim 11, wherein the first crease and the second crease of a first side portion of each insulator are formed shifted toward the bottom of the slot with respect to the first crease and the second crease, respectively, of a second side portion of each insulator, whereby the top sides of the first and second side portions of each insulator, one overlapping the other, enclose an opening of each slot in a manner such that the top side of the second side portion is positioned over the top side of the first side portion.

13. The armature for a dynamo-electric machine according to Claim 10, wherein the side portions of each insulator expand in a circumferential direction at the bottom sides of the side portions of the insulator, thereby coming into close contact with inner faces of the slot toward the bottom thereof.

14. The armature for a dynamo-electric machine according to Claim 10, wherein the armature winding is constituted by at least one winding assembly into which a pair of first and second winding groups is assembled before insertion in the slots, the first winding group comprising a number of first winding sub-portions each having one turn constructed by winding a stand of wire made of a continuous conductor so as to alternately occupy an inner layer

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and an outer layer in a slot depth direction within the slots at intervals of a predetermined number of slots, the first winding sub-portions being disposed at a pitch of one slot from each other and being equal in number of the predetermined number of slots, and the second winding group comprising a number of second winding sub-portions each having one turn constructed by winding a stand of wire made of a continuous conductor so as to alternately occupy an inner layer and an outer layer in a slot depth direction within the slots at intervals of the predetermined number of slots and so as to be inversely wound and offset by an electrical angle of 180 degrees relative to the first winding sub-portions, the second winding sub-portions being disposed at a pitch of one slot from each other and being equal in number of the predetermined number of slots.

15. The armature for a dynamo-electric machine according to Claim 14, wherein the armature winding comprises a plurality of the winding assemblies, and one insulator is received in each slot for insulating the plurality of the winding assemblies from an inner face of each slot.

16. The armature for a dynamo-electric machine according to Claim 14, wherein the armature winding comprises a plurality of the winding assemblies, and a plurality of insulators are received in each slot for individually insulating the plurality of the winding assemblies from an inner face of each slot.